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## FERN COLLECTING IN SOUTHERN CALIFORNIA

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I have heard people say, after visiting the Golden State, that they expected to collect many ferns while there, but could find none. The ferns are not everywhere common as we see them in the North, and there are but few species, and these are seldom noticed about towns or in the level country, but having spent the whole, or a part, of twenty winters in that section, I have learned where to look for them.

One of the very pretty small ferns likely to be found first of all is the cotton fern, Notholæna Newberryi D. C. Eaton. It is rather common among and around big stones and boulders, on the north side of hills of moderate height. It is very silvery in color, and peculiar from the fact that if taken from a press where it has been a year it will at once begin to curl and roll so that after an hour you can hardly get it in good shape again. This fern flourishes in drier places than any other except the bird's-foot fern. This last, Pellæa ornithopus Hook., is seen on almost naked rocks or in the dry gravel of former water courses. It seems nowhere plentiful, but I could always secure all the specimens I needed. The small pinnæ are in threes and suggest its name. It is very stiff and wiry, but pretty withal.

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On the north side of hills, or where the soil holds some moisture for half of the year, the collector, searching among rocks and stones and low bushes, is delighted to find and gather the beautiful golden-backed fern, Gymnopteris triangularis (Kaulf.) Underw. It is the great desire of amateurs and others to obtain specimens of this species. It is also called the silver-backed fern, and this name fits it as well as any, for the backs of the fronds are silvery at first, changing to all the shades of old gold, and finally becoming quite dark in color.

In similar places with the last, and about as plentiful, is the much larger coffee fern, *Pellaa andromedifolia* (Kaulf.) Fée. They make fine specimens, but when dry, if several are laid together, they seem to interlock so that it is next to impossible to get them apart without

breaking off the pinnæ.

This completes the list for most localities, but on the mountain slopes, and along the ravines and cañons which they hold, are acres of Polypodium Scouleri H. & G. This is two or three times larger than our own P. vulgare L. Sometimes associated with it, or among the shrubbery on the north side of the mountain bases, are large sections covered with the charming Adiantum Jordani C. Müll., a maidenhair fern, closely resembling the Venus hair fern, but aside from its rarity, not the equal of our own Adiantum pedatum L. of the North and East. Perhaps the greatest prize of all is the lovely lace fern, Cheilanthes gracillima D. C. Eaton. This is triangular, a little smaller than the golden-backed, and wonderfully cut up and divided, so that it really suggests the name. I have found it on rocky cañon walls, and on or near the tops of mountains 1,500 to 2,000 feet high.

Along streams in the lower mountain gorges one finds in plenty Woodwardia spinulosa Mart. & Gal., a California chain fern. It grows in great clumps four or five

feet high. The winter tourist can secure only sterile fronds, as it does not fruit till midsummer, while all the others are in fruit in February and March.

Almost as beautiful as the lace fern is Cheilanthes Fendleri Hook., which I have found mostly at an altitude of 4,000 to 5,000 feet. It is small, with three to five inch fronds. In like localities is a fern three or four times larger, Polystichum munitum (Kaulf.) Underw., and also the very small but neat Polypodium californicum Kaulf.

This list is small but covers all likely to be found in winter and early spring, and it will take a good many long tramps to find all of these. Possibly the number might be doubled by exploring the higher mountains in summer, and taking trips through the state to the north, where the rainfall is greater and the conditions for fern growth are more favorable.

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## POLYPODIUM VULGARE IN GREAT BRITAIN

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In the very interesting article by Mr. Henry W. Merrill, in the American Fern Journal, I find a reference to the above species in connection with our Choice British Ferns, and would like to point out that the greater number of named varieties here cannot fairly be imputed to a tendency to give more names, but is really due to the fact that the much longer period of investigation into fern variation on this side has naturally resulted in the finding of a greater number of distinct forms worthy of distinct names.

The particular point, however, which strikes me, in